Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VI old • EXAMINATION – WINTER 2017

Subject Code:160505 **Date:08/11/2017**

Subject Name: Computer Aided Process Synthesis

Time:02.30 pm to 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Discuss Process Creation step in product and process design. **07**

(b) Define 'Attainable region' and explain its construction. **07**

Q.2 **(a)** Discuss Engineering ethics briefly. **07**

(b) Draw the algorithm for establishing distillation column pressure and condenser type. **07**

OR

(b) Draw the sequences of ordinary distillation columns for 5 numbers of products. **07**

Q.3 **(a)** Define with example : Cycle time, Make span, Flow shop plant, Job shop plant **07**

(b) Explain overlapping and non overlapping operation. **07**

OR

Q.3 **(a)** Explain various transfer policies. **07**

(b) Discuss the positioning of heat engine. **07**

Q.4 **(a)** Write briefly on Multiple-effect distillation. **07**

(b) Explain heat pumping, vapor recompression and Reboiler flashing in distillation configuration involving compression, **07**

OR

Q.4 **(a)** Discuss the positioning of heat pump. **07**

(b) Explain positioning of distillation towers between hot and cold composite curves using T-Q diagram. **07**

Q.5 **(a)** Explain HEN design procedure to meet MER targets. **07**

(b) Write briefly on threshold approach temperature and optimum approach temperature. **07**

OR

Q.5 **(a)** Find minimum utility targets for the following stream data. Take ΔT_{min} = 10 °C. **07**

Stream	Source temperature, °F	Target temperature, °F	$mC_P * 10^{-3}$, Btu/hr°F
C1	120	235	2
C2	180	240	4
H1	260	160	3
H2	250	130	1.5

(b) Explain heuristics for determining favorable sequences of ordinary distillation column. **07**

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